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Text: The textbook for this course is "**Physics and Technology for Future Presidents: An Introduction to the Essential Physics Every World Leader Needs to Know**" By Richard Muller. There is a popular book with almost the same name, by the same author, which is not the book we will use. The book should be available in the campus bookstore. The ISBN-13 number is 9780691135045

Course Goals: This class is a Freshman Writing Intensive Seminar (FWIS). By taking a FWIS course, students will:

- Enhance their understanding of the central place of writing and communication in the learning process and academic life.
- Learn strategies for analyzing, synthesizing, organizing, and responding to college-level materials.
- Improve their ability to communicate correctly and effectively in writing and speech, taking into account audience and purpose.
- Become comfortable with writing as a process and learn strategies - for instance, prewriting, outlining, and revision - for working through that process.
- Learn the appropriate use of the work of others and, where necessary, specific practices of citation.
- Learn to articulate oral arguments and to respond productively to the arguments of others in formal presentations and/or in class discussion.

In addition to those goals, this specific course has additional goals:

- Give students the knowledge and understanding to make informed decisions about issues involving physics.

- Learn how to critically read articles about science that appear in the popular media and be able to judge what is likely to be good science.
- Understand how physics, and science in general, is performed.

It is not a course goal to make you into a mini-physicist. Rather, the idea is to present physics to you in a context that is useful in the real world. This includes physics that will help you understand issues such as: nuclear weapons, dirty bombs, the fuel economy, medical imaging, and so on. You are encouraged to ask questions, and to suggest topics to be covered. The book is fun to read and one can learn lots of interesting things from it. Even a physics major would learn lots from it, so one result of taking this course is you will learn some "physics things" that the physics majors at Rice probably don't know. One enticing example; the Bureau of Alcohol, Tobacco, and Firearms tests your beer to make sure it is radioactive. (That is not a typo, they want it to be radioactive.) You will learn why in this course. We will work our way through the textbook in sequence, and in addition discuss any current events that are related to physics as they arise during the semester.

Attendance:

Attendance in class is required. An important goal for the course is oral communication and you can not do that in absentia. If you can not make a class you can ask for an exemption by sending and email in advance to Prof. Padley asking for permission to be absent.

Grading:

Writing Assignments (35% of your grade):

You will be given writing assignments on a range of topics. Below you are presented with a tentative list of writing assignments. As a major point of this class is that physics is relevant to current events, the writing assignments may evolve as world events dictate. In that case ample warning of the change will be given in class. Writing assignments will be submitted via Owlspace.

Reading Quizzes (10% of your grade):

It is important that you be reading the book as we go along. There will be weekly online reading quizzes that are not meant to be hard, but rather are just meant to be a reward for reading the book. You are allowed to use your book during the reading quizzes. Note that the quizzes are timed. You won't be able to finish a quiz if you have not read the corresponding chapter in advance. These will be very brief multiple choice quizzes administered in owlspace.

Two Midterm Exams (10% of your grade each):
There will be a two in-class midterm exams. These will be a mixture of multiple choice and free response questions.

Final Exam (15% of your grade):

There will be a scheduled final exam. This will have a mixture of multiple choice and free response questions.

Class Participation (10% of your grade):

There are two components to your Class Participation grade:

You will be called upon in class to attempt to answer questions. Your response will not be graded on the correctness of your answer (you are learning this material; it is fine to have misconceptions) but rather on your level of engagement:

- You were engaged in class and were able to give an articulate response - 3 points
- You were disengaged from the class and fumbled about to respond - 1 point
- You were absent without being given permission and therefore could not respond - 0 pts.

In addition you will be expected to participate in class discussions.

Oral Presentation (10% of your grade):

In April you will have to make a formal presentation (using PowerPoint or other presentation software) of approximately 8 minutes length. Prior to making the presentation in class you will be required to give it to a small group that includes Dr. Volz, who will provide feedback for you your to incorporate into your in class presentation. The topic of your presentation can be anything you want loosely related to the course material. You will be expected to explain qualitatively the physics involved and how this physics impacts society. You may not choose one of the essay topics for your oral presentation topic.

You are expected to be reading the news searching for items related to physics. To help you in this process a Facebook page is maintained with links to relevant news items (http://goo.gl/DlSo3). You are encouraged to post items you discover to this page.

Deadlines:

Work should be submitted by the deadline announced in owlspace. Work that misses the submission deadline will have the grade reduced by 20% for each day that it is late. Exceptions will be made for illness and other extraordinary circumstances. (Hangovers, sleeping in, assignments due in other courses, and so on are not extraordinary circumstances, they are facts

of student life.) Weekends count as 1 day, i.e. if something is due on Friday and you turn it in on the following Monday, you receive a 20% grade reduction for that assignment

Office Hours: Generally I am available during the normal working day – with the afternoons being better than the mornings. You are also welcome to send an email to confirm an appointment in advance.

Web Sites: Homework, announcements etc. can be found on Owlspace.

Tentative List of Essays and Due Dates (more details of each in Owlspace):

The automotive technology best suited to your family (5%). Due January 23.

For each of the following essays, you will submit a first version, have a one on one review of the essay, and then submit a revised version. Your grade will be the average of the two versions.

Human Space Flight. (10%).
First version due February 9
Final version due February 23.

Briefing paper on Nuclear Power (10%)
First version due March 16.
Final version due March 30.

Denialism (10%)
First version due April 10.
Final version due April 24.

(You don't have to wait until April 24th to submit the final essay. The last week of class is busy, so get it in sooner if you can).

Grades Summary:

- 35% Essays
- 10% Reading Quizzes
- 10% Midterm Exam 1
- 10% Midterm Exam 2
- 15% Final Exam
- 10% Class Participation
- 10% Formal Presentation

We reserve the right to rescale the final grades upward using an arbitrary transformation. (i.e., your grades can not go down, but I reserve the right to move them up.)

Students with Disabilities: If you have a documented disability that will impact your work in this class, please contact us to discuss your needs. Additionally, you will need to register with the Disability Support Services Office in the Allen Center.

Academic Honesty: Plagiarism and intellectual dishonesty are violations of the Rice Honor Code and will be reported to the Honor Council. The Honor Council defines plagiarism as "quoting, paraphrasing, or otherwise using another's words or ideas as one's own without properly crediting the source. . . . "The Honor Council assumes that, unless otherwise credited, all work submitted by the student is intended to be considered as his or her own work." You will learn how to cite others' ideas and words in this class.

Center for Written, Oral, and Visual Communication (CWOVC): You may seek feedback on your written work or an oral presentation from a communication consultant at the CWOVC, located on the second floor mezzanine of the Fondren library. You can make an appointment online at the Center's website at cwovc.rice.edu.